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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,927	07/20/2001	Kenneth Perlin	NYU-7	2411

7590 03/22/2004

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EXAMINER

NGUYEN, KEVIN M

ART UNIT PAPER NUMBER

2674

DATE MAILED: 03/22/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/909,927

**Applicant(s)**

PERLIN ET AL.

**Examiner**

Kevin M. Nguyen

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The amendment filed on 02/11/2004 is entered. The remark has been fully considered but they are not persuasive. The rejections of claims 1-11 are maintained.
2. The drawings were received on 02/11/2004. These drawings are acknowledged and approved.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-4, 7, 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards (US 6,057,811) in view Allio (US 5,808,599), and further in view of Aye et al (US 5,886,675).
4. As to claims 1 and 7, Edwards teaches a 3D display device associated with a method, the 3D image display device comprising  
a display screen 12 (fig. 1); a light blocking shutter 20, 22 (fig. 1); a computer (a display control circuit 16, 28, fig. 1); a left eye, a right eye (see fig. 1, column 3, lines 42-66).  
Edwards fails to teach 1/3 of each stripe of the image on the display screen during each of at least three distinct phase as red, green and blue.

However, Allio teaches 3D display device including 1/3 of each stripe of the image on the display screen (see Fig. 1A, column 1, line 55-56), during each of at least three distinct phase as red, green and blue (Fig. 1A, col. 3, lines 29-31).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide 1/3 of each stripe of the image on the display screen during each of at least three distinct phase as red, green and blue taught by Allio for Edwards' 3D display device because this would obtain focal lengths that are smaller and to obtain observed areas that are smaller, thereby avoiding the observer perceiving the dot structure of color points and pixel on the screen (column 1, lines 52-55 of Allio).

Edwards and Allio fail to teach an eye tracker.

However, Aye et al teaches 3D display device comprising an eye tracker (a camera 42, see figure 2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to provide the eye tracker taught by Aye for Edwards' 3D display device because this would provide the capability for real-time auto stereoscopic display together with an impressive look-around feature.

As to claim 2, Edwards teaches rear projection screen 12 (see figure 9).

As to claim 3, Edwards teaches controllers 16, 28 (a field programmable gate array) in communication with the projection screen 12 and the shutter 20, 22 with synchronizes the phases between the shutter 20, 22 and the projection screen 12 (see figure 1).

As to claims 4 and 11, Edwards teaches a projector 10 (see figure 2).

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As to claim 8, Aye et al teaches forming step of encoding into 1-dimensional bit-maps (see figure 9).

5. Claims 5, 6, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards in view of Allio in view of Aye et al, and further in view of Johnson et al (US 5,231,521).

As to claims 5, 6, 9 and 10, Edwards, Allio, and Aye et al teach all of the claimed limitations of claims 1 and 7, except for a ferroelectric liquid crystal display (LCD) and a pi-cell.

However, Johnson et al teaches the ferroelectric liquid crystal display (LCD) and the pi-cell (see figure 2).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to substitute the ferroelectric liquid crystal display (LCD) and the pi-cell taught by Johnson et al for Edwards' LCD because this would be optimized for increased spectral discrimination, improved single and multiple stage filters, discretely tunable and continuously tunable filters (column 4, line 65 of Johnson et al).

6. Claims 1 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Street (US 5,712,732) in view of Allio (US 5,808,599).

As to claims 1 and 7, Street teaches 3D display device associated with a method, the 3D display device comprising

a display screen 89; a light blocking shutter 88; stripe pattern 92 allows 1/4 of each stripe of the image on the display screen during each of at least three distinct phase as red, green and blue; a display control circuit 9, a left eye 90, a right eye 91, an

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eye tracker 93 (see figures 9 and 10, columns 13 and 14); the whole pattern is shifted rapidly between four locations on a pitch of  $S_1/4$ . The whole pattern is shifted rapidly between four locations on a pitch of  $S_1/4$ . The top left hand corner of the pattern at each position is marked respectively as 99A, 99B, 99C and 99D. Over a short time interval, each part of the entire area of array 88 transmits for up to 25% of the time available (col. 14, line 67 through col. 15, line 4).

Street fails to teach 1/3 of each stripe of the image on the display screen during each of at least three distinct phase as red, green and blue.

However, Allio teaches 3D display device including 1/3 of each stripe of the image on the display screen (see Fig. 1A, column 1, line 55-56), during each of at least three distinct phase as red, green and blue (Fig. 1A, col. 3, lines 29-31).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify Street's 3D image including 1/3 of each stripe of the image on the display screen during each of at least three distinct phase as red, green and blue, in view of the teaching in Allio's reference because this would obtain focal lengths that are smaller and to obtain observed areas that are smaller, thereby avoiding the observer perceiving the dot structure of color points and pixel on the screen at taught by Allio (column 1, lines 52-55).

### ***Response to Arguments***

7. Applicant's arguments filed 02/11/2004 have been fully considered but they are not persuasive.

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8. Applicant states that "applicant wish to point out to Examiner there is significant confusion in the Examiner's rejection on page 3, second paragraph." In response, Examiner clarifies the rejections at paragraph 4 above.

9. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

10. In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

11. In response to applicant's argument that claim 1 recites "light blocking shutter disposed in front of the display screen forming a stripe pattern which lets through only 1/3 of each strip of the image on the display screen during each of the at least three

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distinct phases; a computer connected to the display screen; an eye tracker." This argument is not persuasive because Edwards teaches

At col. 4, lines 35-40 recited

Referring now to FIG. 3, there is illustrated a block diagram of the control transmitter 16. A Central Processing Unit (CPU) 32 is operable to control the data portion of the control transmitter relating to the shutter control operation. The CPU 32 is a conventional CPU that provides instruction execution operations.

At col. 6, lines 1-4 recited

a predetermined delay 72 is interposed into the system by the CPU and is associated with the glasses, and which will be described in more detail hereinbelow

At to col. 6, lines 12-14 recited

the Left Drive signal goes from an OFF state to an ON state and the Right Drive signal goes from an ON state to an OFF state.

Allio teaches

At col. 1, lines 56-57 recited

The size ratio between color points and pixels (1/3) is preserved.

At col. 4, lines 42-50 recited

The pixels are distributed over a square, each square having a red pixel R and a blue pixel B on one diagonal and two half-intensity green pixels G on the other diagonal. The processing to be performed is similar to the above, but at a pitch of two pixels instead of three, i.e. as though the image was a two-color image. In this example, a number of viewpoints must be odd (in this case three) and each lens L'1, L'2, L'3, etc. must be of a width covering three pixels.

Aye et al teaches

At col. 3, lines 24-26 recited

a binary head tracker 40 electrically connected to said image signal electronics, said binary head tracker including a camera 42 and a circuit board.



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These arguments are not persuasive Allio teaches each lens L'1, L'2, L'3 performs a function of a display screen upon which stripes of the image appear. The combinations teaching of Edwards, Allio, and Aye et al meet the claimed limitations of claim 1.

12. In response to applicant's argument of Street and Allio that claim 1 recites "1/3 of each strip of the image on the display screen during each of the at least three distinct phases." This argument is not persuasive because Allio teaches

At col. 1, lines 56-57 recited

The size ratio between color points and pixels (1/3) is preserved.

At col. 4, lines 42-50 recited

The pixels are distributed over a square, each square having a red pixel R and a blue pixel B on one diagonal and two half-intensity green pixels G on the other diagonal. The processing to be performed is similar to the above, but at a pitch of two pixels instead of three, i.e. as though the image was a two-color image. In this example, a number of viewpoints must be odd (in this case three) and each lens L'1, L'2, L'3, etc. must be of a width covering three pixels.

These arguments are not persuasive because Allio teaches each lens L'1, L'2, L'3 performs a function of a display screen upon which stripes of the image appear. The combinations teaching of Street and Allio meet the claimed limitations of claim 1.

For these reasons, the rejections based on Edwards, Street, Allio, and Aye et al have been maintained.

### ***Conclusion***

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Nguyen whose telephone number is 703-305-6209. The examiner can normally be reached on MON-THU from 9:00-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A Hjerpe can be reached on 703-305-4709. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-0377.

Kevin M. Nguyen  
Patent Examiner  
Art Unit 2674

KN  
March 18, 2004



XIAO WU  
PRIMARY EXAMINER